

Remarks / Arguments

Claims 7-11 are pending this application. Claims 7-1 stand rejected. With this Amendment, claim 7 is amended.

In view of these amendments the applicants believe that all of the claims now present in the application – in their present form – are allowable.

It is submitted that each of the various rejections are overcome through the effect of the clarifying amendments or by various arguments presented herein.

Entry of this amendment is appropriate since the amendments (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issues requiring further search and/or consideration; (c) do not present any additional claims and (d) place the application in better form for appeal - should such appeal be necessary. Entry of the amendments is therefore respectfully requested.

If however, the Examiner believes that there are any unresolved issues requiring adverse action in any of the claims now pending in the application, it is requested that the Examiner telephone John F. Moran, ESQ. At 973-724-6590, so that arrangements may be made for resolving such issues as expeditiously as possible.

Claim Rejections – 35 U.S.C. § 103

Claims 7-8 are rejected under the provisions of 35 U.S.C. § 103 as being unpatentable over Ingersoll (5,390,604) in view of Cole (US Statutory Invention Registry H776).

As the applicants will show, the cited combination does not render the claimed invention of the instant application obvious.

More specifically, Ingersoll discloses a method and apparatus for mortar fuze arming such that the early explosion of mortar shells are avoided because the fuze is not armed until it is halfway through its **expected** flight time. [emphasis supplied]

In its method aspects, the Ingersoll patent discloses that the mortar fuze calculates the charge and angle of launch based on the turbine alternator frequency and Doppler frequency. From this calculation an additional calculation is made to determine the time of flight of the mortar round to its trajectory apex. Based upon this calculated time of flight information, the

mortar fuze arming system electronically arms the fuze at the apex of the flight of the mortar round, using existing arming circuits present in the M734 proximity mortar round.

In sharp contrast, the claimed invention of the instant application determines when the apogee is reached through the effect of a sensor on-board the projectile. From this apogee determination, the actual time between the launch of the projectile and the sensed apogee is determined. From this determined time, the time to a desired height of burst is then calculated. As claimed, the on-board sensor is one selected from the group consisting of accelerometric sensor, gyroscopic sensor, velocity sensor, global positioning sensor, inertial sensor, and MEMs

Importantly - and in sharp contrast to the teachings of the Ingersoll patent - the claimed invention **determines** when the apogee occurs through the effect of an on-board sensor, **measures** the actual time to apogee; and then **calculates** the time to height of burst detonation based upon this **measured** time.

There is simply no teaching or suggestion in the Ingersoll patent of such a method. Instead, Ingersoll teaches a method which **estimates** the time to apogee based upon an early measurement then **looks up** the time to apogee based upon that early estimate.

Accordingly, the claimed invention provides a much more accurate determination of apogee and the actual measured time thereto, thereby providing a much more accurate calculation of the time to height of burst. Since these important claimed aspects of the present invention are not taught or suggested by the Ingersoll patent, the applicants submit that it cannot render the claimed invention obvious.

The remaining question then is whether the United States Statutory Invention Registration H776 of Cole can remedy these teaching deficiencies. The answer is no.

Cole teaches a flail which reduces the spin of a projectile in a recovery system which includes a parachute, a cable connected to the parachute, a swivel, and connection of the swivel to the projectile. The flail includes a plurality of flexible filaments and attachment for attaching the filaments to the projectile near its front end. The filaments are attached to the projectile radial with respect to a spinning axis of the projectile. In use, the flexible filaments are deployed before the parachute is deployed in order to reduce shell spinning before the

parachute is deployed. Alternatively, the filaments may be deployed at the same time or after the parachute is deployed.

And while the Cole registration does generally teach the use of a timer to permit the releases at predetermined times in the projectile trajectory, it too does not – teach or suggest either alone or in any combination - certain salient aspects of the present invention namely: the determination of its apogee through the effect of an on board sensor, the measurement of the time to the apogee; and the calculation of the time to a height of burst based upon that measured time to apogee.

Since these references – both alone and in the cited combination – fail to teach or suggest these important aspects of the claimed invention the applicants submit that they do not render it obvious.

In that regard, independent claim 7 as amended now recites – with particularly distinguishing aspects shown in bolded typeface:

“..A method of determining the time t_{HOB} to a desired Height Of Burst (HOB) of a projectile comprising the steps of:

- a. determining, through the effect of a sensor on-board the projectile, when the projectile reaches its apogee after launch;
- b. measuring the actual time t_a that it takes said projectile to reach the apogee after launch; and
- c. calculating the time to the desired Height Of Burst t_{HOB} based upon the actual time t_a ;

wherein said on-board sensor is one selected from the group consisting of: accelerometric sensor, gyroscopic sensor, velocity sensor, global positioning sensor, inertial sensor, and MEMs.” [emphasis supplied]

Since these aspects of the claimed invention are not taught or suggested by these references, the applicants submit that they cannot render the claimed invention obvious. Inasmuch as each of the dependent claims 8-11 each further distinguishes the claimed invention the applicants submit that they too cannot be rendered obvious by the cited combination of references as neither – taken alone or in any combination – teach or suggest – either explicitly or implicitly – the inventive method as presently claimed.

Appl. No. 10/711,521
Amnd. Dated 28-Apr-08, 2007
Reply to Office Action of 29-OCT-2007

Accordingly, the applicants respectfully request the Examiner to withdraw the rejections based upon 35 U.S.C. § 103.

Conclusion:

The applicants submit that all of the claims now present in the application – in their present form - fully comply with the provisions of 35 U.S.C. § 103 and are therefore allowable. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

Respectfully submitted,

By s/John F. Moran/
John F. Moran
Reg. No. 26,313
US Army – ARDEC
3 Picatinny Arsenal Bldg.
Dover, New Jersey 07806
Tel. (973)724.6590

<u>CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. 1.8(a)</u>	
I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office on April 28, 2008.	
s/John F. Moran/ Signature	
John F. Moran Typed or printed name of person signing certificate	
26,313 Registration Number	(973)724.6590 Telephone Number